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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/661,283

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EXAMINER

HODGE, ROBERT W

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/661,283

Applicant(s)

BLANCHET ET AL.

Examiner

Robert Hodge

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,6,8,9,12-37,40,42-54 and 56-64 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,6,8,9,12-37,40,42-54 and 56-64 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Response to Arguments***

Applicant's arguments, see Remarks/Arguments, filed 10/20/06, with respect to the rejection(s) of claim(s) 1, 3, 6, 8, 9, 12-18, 20 and 22-36 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of U.S. Patent No. 5,849,370.

In response to applicants' arguments regarding the Carr reference, applicants state that the Carr reference teaches that the backing rings are used for bolting the assembly together and that the gasket does not extend beyond the backing rings. However applicants have only addressed one embodiment of Carr. As seen in paragraph [0032] the backing rings are optional and the Carr reference discloses that the flanges may be bolted together with bolts passing through the flanges. Therefore if the backing rings are not used the gasket extends beyond the outer periphery of the flanges.

Claim Objections

Claims 1 and 37 are objected to because of the following informalities: As currently amended both claims recite "has a surface roughness equal to or less than approximately 80 μ in". As best understood by the Examiner, applicants meant to state that the surface roughness is equal to or less than, not equal to or less than. Appropriate correction is required.

Art Unit: 1745

Claims 6 and 40 are objected to because of the following informalities: In line 7 of the claims the word "the" should be inserted between "in" and "other" and in line 11 of the claims the word "to" should be inserted between "adapted" and "receive". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3, 6, 8, 9, 12-37, 40, 42-54 and 56-64 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In newly amended claims 1 and 37 applicants recite the limitation "said coating on said parts of said first surfaces of said first and second members has a surface roughness equal to or less than approximately 80 μ in". Applicants state that support for this limitation can be found on page 10, lines 16-18 of their specification as well as shown in Figure 4. However the Examiner has thoroughly reviewed applicants' specification to find support for this amendment and cannot find such support. As disclosed in applicants' specification it is only stated that the flange surfaces are polished to a surface roughness of 80 μ in but it does not state that the coating is

Art Unit: 1745

polished to a surface roughness of 80 μ in as required by the claims. Therefore the claims contain new matter.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1, 3, 6, 8, 9, 12-18, 20, 22-36 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pre-Grant Publication No. 2001/0040349 hereinafter Carr in view of U.S. Patent No. 6,070,911 hereinafter Namikawa and U.S. Patent No. 5,849,370 hereinafter Lee.

2. Carr teaches a connection assembly for connecting two components that utilizes a dielectric member situated between two members of the two components, that is disk shaped and has an opening that is smaller than the opening of the two members, an outer portion that extends outward of the two members and utilizes a raised sealing face as well as bolts used to clamp the flanges together and in the embodiment where the backing rings are not used the gasket will extend beyond the outer periphery of the flanges as seen in figure 2a (abstract, figures 1 and 5, paragraphs [0002] – [0045]).

3. Carr does not teach any of the specific properties of the connection assembly.

4. Namikawa teaches a connection assembly for connecting two pipes that are at different electrical potentials by using dielectric materials sandwiched in between two plates or flanges that are weldable, using bolts and or substantially v-shaped clamps to hold the two members together, using dielectric members that have smaller openings

Art Unit: 1745

than that of the bolt holes, and that dielectric tubes are used around the bolts, and that said bolts also have nuts and washers used in the assembly that also comprise metal, dielectric washers (i.e. a disk-shaped dielectric member) and non-dielectric washers.

Namikawa also teaches that various parts such as to a seal ring, clamps and hubs used in the assembly may be coated with a dielectric material that is of a mica material and/or a ceramic coating all to prevent electric conduction between the hubs and pipes (abstract, figures 1-5, column 1 lines 6-54 and column 2 line 11 – column 4, line 59).

5. Lee teaches a method for producing stable dielectric coatings wherein the coating has a low surface roughness of less than 5 Å RMS which is less than 80 μin (column 5, lines 10-11).

6. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the features of the Namikawa reference in the Carr reference in order to provide a connection assembly that decreases flow resistance and is also electrically isolated that would in turn prevent any explosions should explosive gases be transported in the pipes. It would have also been obvious to a person having ordinary skill in the art to coat any or all of the parts of the connection assembly to best isolate the two pipes from one another to create the best electrical isolation from the two pipes again to prevent the ignition of any explosive gases from either static or electrical discharge. It would have also been obvious to provide a dielectric coating of less than 80 μin as taught by Lee in order to provide a near bulk density dielectric thin film coating with low surface roughness and low defect density that would be a stable coating and

Art Unit: 1745

would not flake off over time thus providing electric isolation from the two pipes preventing the ignition of any explosive gases from either static or electrical discharge.

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carr in view of Namikawa and Lee as applied to claim 18 above and further in view of U.S.

Patent No. 5,967,566 hereinafter Schlicht.

8. Carr as modified by Namikawa and Lee does not teach the use of an ASME slip-on flange.

9. Schlicht teaches a lightweight slip on pipe flange that is a conventional ASME flange (column 1, lines 52-63 and column 3, lines 51-64).

10. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include a conventional ASME flange in Carr as modified by Namikawa and Lee as taught by Schlicht in order to use a well known and recognized slip-on flange that is easily attainable and would allow for easy assembly of the connector.

11. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carr in view of Namikawa and Lee as applied to claim 20 above and further in view of U.S. Pre-grant publication No. 2004/0137259 hereinafter Pabla.

12. Carr as modified by Namikawa and Lee does not teach the use of NiCrAlY and Al_2O_3 as the dielectric materials to be used in the coatings.

13. Pabla teaches that NiCrAlY and Al_2O_3 are well known for their dielectric properties and are especially desirable in dielectric coatings (paragraphs [0008], [0014], [0022], [0033], and tables III and IV).

Art Unit: 1745

14. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use NiCrAlY and Al_2O_3 as the dielectric materials in Carr as modified by Namikawa and Lee as taught by Pabla in order to use well known dielectric materials that would provide an electrically insulative coating that would be durable and easily attainable for manufacturing purposes.

15. Claims 37, 40, 42-51, 53, 56, 58-62 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carr in view of Namikawa, Lee and Energy Partners.

16. The disclosures of Carr, Namikawa, Lee and Energy Partners discussed above are incorporated herein.

17. Carr as modified by Namikawa and Lee does not teach the use of the connection assembly with a fuel cell stack.

18. As discussed in the prior office actions Energy Partners released an article on June 11, 1999 disclosing a 20 kW fuel cell stack called the NG2000. Further research reveals a picture of the NG2000 that has connectors mounted to it that use an industry standard butt weld sanitary ferrule connectors that are commercially available. As can be seen in the picture it is clearly a fuel cell stack assembly having more than one sanitary ferrule connector.

19. At the time of the invention it would have been obvious to a person of ordinary skill in the art that the connection assembly taught by Carr as modified by Namikawa, Lee could also be used in the Energy Partners fuel cell stack in order to electrically isolate the stack from the fuel source especially at high operating pressures in order to

Art Unit: 1745

reduce the risk of a potential explosion due to the extreme combustibility of gases used in fuel cell stacks.

20. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carr in view of Namikawa, Lee and Energy Partners as applied to claim 51 above and further in view of Schlicht.

21. Carr as modified by Namikawa, Lee and Energy Partner does not teach the use of an ASME slip-on flange.

22. Schlicht teaches a lightweight slip on pipe flange that is a conventional ASME flange (column 1, lines 52-63 and column 3, lines 51-64).

23. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include a conventional ASME flange in Carr as modified by Namikawa, Lee and Energy Partners as taught by Schlicht in order to use a well known and recognized slip-on flange that is easily attainable and would allow for easy assembly of the connector.

24. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carr in view of Namikawa and Energy Partners as applied to claim 53 above and further in view of Pabla.

25. Carr as modified by Namikawa, Lee and Energy Partner does not teach the use of NiCrAlY and Al_2O_3 as the dielectric materials to be used in the coatings.

26. Pabla teaches that NiCrAlY and Al_2O_3 are well known for their dielectric properties and are especially desirable in dielectric coatings (paragraphs [0008], [0014], [0022], [0033], and tables III and IV).

Art Unit: 1745

27. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use NiCrAlY and Al_2O_3 as the dielectric materials in Carr as modified by Namikawa, Lee and Energy Partners as taught by Pabla in order to use well known dielectric materials that would provide an electrically insulative coating that would be durable and easily attainable for manufacturing purposes.

28. Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carr in view of Namikawa and Energy Partners as applied to claim 37 above and further in view of Guthrie et al. U.S. Patent No. 4,786,086 hereinafter referred to as Guthrie et al.

29. Carr as modified by Namikawa, Lee and Energy Partner does not disclose that the fuel cell stack assembly be enclosed in a vessel with a pipe extending through said vessel.

30. Guthrie et al. teaches that a fuel cell stack operated at high pressures must be contained in a pressure vessel (column 1, lines 20-22) and that pipes will penetrate the stack pressure vessel (column 3, lines 25-26).

31. At the time of the invention it would have been obvious to a person of ordinary skill in the art to enclose a high-pressure fuel cell stack within a pressure vessel. The motivation for doing so would have been first to maintain the fuel cell stack at the desired pressure for operation without the loss of gases from leaks between the cells due to the pressure differential between the stack and the atmosphere. As well as to contain the fuel cell stack for safety purposes if a component were to explode due to the high operating pressure.

Art Unit: 1745

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Trainer Susy Tsang-Foster can be reached on (571) 272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RWH


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